Contributory education scheme : theoretical basis and application

David Flacher, Hugo Harari-Kermadec, Léonard Moulin

2. Contributory education scheme: Theoretical basis and application

David Flacher, *Université Paris 13*
Hugo Harari-Kermade, *ENC- Cachan*
Léonard Moulin, *Université Paris 13*

Contributory education scheme: Theoretical basis and application

David Flacher, *Université Paris 13*
Hugo Harari-Kermade, *ENC- Cachan*
Léonard Moulin, *Université Paris 13*

Abstract
After a short criticism of the "self-funded education scheme" which is widely implemented in the world and often based on tuition fees, this article develops theoretical basis for a "contributory education scheme". This model is characterised 1) by a universal access for students to grants allowing them to take charge of themselves during their higher education curriculum; and 2) by a funding regime relying in particular on the population that has benefited from grants, once studies are finished. The article first points out the limits of the self-funded education scheme. Then, it discusses the analogies and differences with pension systems implemented in countries like France. We derive theoretical motivations in favour of a contributory education scheme: The equity of access to higher education, the incentives for students and university to be efficient, as well as the contributory equity are discussed. The article proposes finally to assess, for France, the cost and the options concerning the transformation of the tax system that would be needed for funding such a reform. Beyond the individual income, variables like the degree obtained by the student are taken into account in our assessment. The conclusion draws research perspectives concerning the theoretical dimensions and the transition such a reform concretely implies.

Keywords: contributory education scheme, grants, France, equity, self-funded education scheme, tuition fees.

JEL Classification: I20, H30, H52, H75.

1. Introduction

In many countries, higher education education is facing two types of problems: the insufficient expenditure per capita in the higher education and, because of social, cultural or financial barriers, the difficulties for the system to insure that all the potential talented students will be enrolled in the higher education. What type of funding should be implemented for higher education in order to enhance both efficiency and social justice? This question returns to the role of the state and, to some extent, to the industrial support universities can get. It also returns to students' participation to education costs.

The *self-funded education scheme* is widely implemented all around the world even if students are more or less involved in the financial effort. It can be defined as the system in which the student invests in order to pay for his studies. This scheme relies in an accumulation approach: students invest and expect private returns. In countries like the United States, many universities are asking high or very high tuition fees, while in other countries, like France, almost all the universities and school (with a few exception) are almost "free" for enrolled students. Even if the second case facilitates individual's entry, we must keep in mind that the cost of living is very significant (Courtioux, 2009, 2010), obliging many students to have a job in parallel with their studies.

The level of students' participation to education costs depends on the role played, on the one hand, by the state and, on the other hand, by the firms. Indeed, the state finances more the education system if the social externalities of education are considered to be very high and if the needs can not be easily and efficiently brought by a financial support from the industry or by the students themselves. State's commitment also depends from the socio-political context and from the historical path of each national education system. Even if it is often difficult to rise taxes,

the public funding is supposed to favour adjustment between regions and to take into account the social welfare beyond the short term profitability concerns. It is also supposed to act in favour for the reduction of social inequalities. In this article, we will concentrate on the opportunity of students' participation to the education costs by distinguishing the participation to the costs of the academic institution itself (through tuition fees) and the funding of students' living costs. In particular, we will try to understand the corresponding mechanisms that could be favourable to social justice and efficiency. This question is crucial because the population in higher education have massively increased in the past fifty years: in France, the number of students has been multiplied by seven (from 300 000 students per year in 1960 to more than 2 millions nowadays). The proportion of graduate students has also increased significantly from 20% of the population born in 1960 to 40% for the 1975 generation. However, even if all social classes have benefited from this evolution, strong social inequalities remain and have even increased: the probability to study in the higher education is three times higher for individuals born in the upper-class than for individuals born in the working class. The proportion of the latter in the most prestigious schools has even decreased from 39% to 9% in about 40 years. In parallel, the inequalities in education funding are still very important at the individual level (for a student born in 1970, the average expenditure is 19000 euros per student born in the working class education and 31000 euros for a student born in the upper-class) and at the institutional level (the average expenditure in the universities is 8970 euros per student in 2007 while it is 13 880 euros per student in the prestigious preparatory schools for the "grandes écoles"). We can also point out that tax exemptions for richest households is equivalent to 60% of social grants (which, moreover, are still very low).

This situation, for certain economists, justifies to implement tuition fees in order to compensate the anti-redistributive effect of "free" education (Gonzalez Rozada and Menendez, 2002). However, can these inequalities in terms of funding and of access to higher education be solved by implementing tuition fees and thus deepening the self-funded education scheme ? Can a more efficient and equitable system be proposed ? This question is not only fundamental for funding higher education. It is also a crucial for efficiency concerns: is the implementation of tuition fees leading to a better allocation of resources, to stronger efforts from students teachers and universities ?

To answer these problems, two options will be considered: one consists in the promotion of the self-funded education scheme, with a growing role of tuition fees, while the other relies on a collective contributory education scheme. We define the latter scheme as a system in which the academic institution is more heavily financed by the state and in which students do not pay tuition fees but receive an autonomy-grant, financed by the active people who have benefited from the higher education system (similarly to the contributory pension scheme).

To assess the relevance of these two approaches, Section 1 presents the motivations and limits of the self-funded education scheme. Section 2 presents the principles that could support the contributory education scheme. Finally, Section 3 proposes mechanisms to implement such a scheme and their quantification for the French education system.

2. Motivations and limits of self-funded education scheme

The self-funded education scheme relies on the idea that education has to be more or less directly financed by the student or by its family. This comes down to consider that education is primarily a investment in order for individuals to accumulate human capital with the expectation to get private return.

Within this logic, borrowing can be justified and the intervention of the state can be twofold.

It can remove the borrowing constraints. As stressed by Gary-Bobo and Trannoy (2005), an efficient allocation of the resources (and in particular the enrolment of talented students, independently from their financial situation) requires that this condition is fulfilled. According

to these authors, tuition fees appear to be primarily a good tool for selecting students in presence of information asymmetry: if the students own an information on their talents that the university can not observe, tuition fees reveals a part of this information[173]. However, each student also takes the risk not to succeed his curriculum or career. Thus, this risk appears to be a disincentive for potential students to be enrolled in higher education.

The state can thus implement "insurance mechanisms" in order to favour students' enrolment. A literature, since Friedman (1955) has argued the possibility to implement loans with "conditional reimbursement". For Grégoir (2008), reimbursements could be due only if the individual's wage exceed a threshold and with an interest rate depending of the individual's wage, as implemented in Australia. However, such a mechanism reduces the self-selection effect expected from tuition fees. The remaining objective is then to increase the resources of the higher education system without hanging on public funds.

Finally, the literature in favour of tuition fees argues that students and teachers would be incited to be more efficient: students would become the customers of the university, demanding more to teachers and to themselves. The university would also face a competitive environment (Friedman (1962), Gary-Bobo and Trannoy (2005)). Additionally, since the population in higher education mainly comes from upper social classed, tuition fees would induce more social justice.

Nevertheless, all these arguments in favour of tuition fees can highly be challenged.

Tuition fees are not necessarily effective for raising fund: in a context of unemployment, for instance, the risk of borrowing is too high and many students would prefer to leave school. In case of conditional loans, the state would bear a costly financial risk. This is one of the conclusion of a recent report issued in the United Kingdom after the rise of tuition fees cap (REF). Let also note that the increasing tuition fees can be accompanied with a decrease of state's contribution. As it has been observed in Australia (REF).

Tuition fees are not even leading to more social justice or more efficiency. Tuition fees do not necessarily provide effective incentives for the agents to be more productively efficient: in France for instance, the quality of the curriculum and the one of the student have no link with the level of tuition fees (that are very low in most cases and even negative).

In the theoretical literature, the adverse effects of implementing tuition fees are not taken into account; the social return from education neither. This is particularly the case when the models do not integrate the heterogeneity of the population. However, students' behaviours and beliefs depend also on their social environment: individuals with the same basic talents differ in their abilities to comply with the social codes of examinations and in their perception of their own abilities. Students from socially and/or culturally privileged backgrounds tend to estimate more precisely (or to overestimate) their talent, while the reverse is true of students from disadvantaged families[174]. As stressed by Flacher and Harari-Kermadec (2011), these dimensions contradict the self-selection effect defended by Gary-Bobo and Trannoy (2008).

Moreover, by increasing the debt burden relying on a part of the population, tuition fees distort individual's behaviours, even with conditional loans: relying on empirical and experimental studies, Field (2009) show that even perfect access to finance may be insufficient to avoid the distortions related to the debt burden: if borrowing behaviours and the reactions to the debt burden are not rational then career choices will favour lucrative jobs, to the detriment of jobs that might be socially useful.

173 Without this information asymmetry, merit-based scholarship can be awarded to favour enrolment of talented students (or tuition fees could be removed).

174 See Bourdieu (1974), Boudon (1974;1994), Sullivan (2006) and the "relative risk aversion theory" (Breen et Goldthorpe (1997), Holm et Jaeger (2008). See also Flacher and Harari-Kermadec (2011).

In this context a significant risk of inefficient bipolarisation of the higher education system results from the debt burden and the heterogeneity of the population. Consequently, the potentially ineffectiveness of tuition fees for raising fund and for achieving education aims may be very important. On the one hand, cumulative mechanisms are favouring the upper class that can afford paying high tuition fees to be enrolled in very reputed schools with very high resources, the schools being more and more attractive for an elite. On the other hand, other universities are enrolling students from lower social classes and consequently getting lower resources to provide a good education. Moreover, the very best students from lower social classes are usually financially helped to be enrolled in the best universities leaving the others with average students. Such self-funded education scheme reproduce and amplify the inequalities without being necessarily more efficient, somewhat like the self-funded pension scheme does.

Even if low tuition fees in countries like France leads to anti-redistributive funding of universities (a majority of the students comes from upper social classes while education is financed by the national tax system[175]), there is no guarantee that the bipolarisation resulting from the introduction of tuition fees would not be socially worse.

In order to fund the higher education, to favour a fair access to the whole population and to make the system more efficient, we must go beyond the self-funded scheme. We must take into account social externalities, even if they are difficult to measure. We must reduce the social bias in the universities enrolment as well as the debt burden that distort individual choices. These dimensions are of great importance not only at the economic level but also in terms of society choice: what should be the relations between the students, the knowledge and the whole society? How can the school be a vector of social cohesion if the education system leads to an increasing polarisation of the society?

3. A collective contributory education scheme

Part of the classical arguments used in discussion about pension funding *(contributory pension scheme* - unfunded state pensions - vs *self-funded pension scheme* - generally through pension funds) can be usefull to discuss the funding of direct and indirect cost of higher education. Contributory pension systems (pay-as-you-go) are based on redistribution from current workers to retiered workers and suppose an intergenerational solidarity. We propose here to complete this social link in direction of the youth, and we introduce a contributory funding scheme for higher education. In fact, actual higher education is already mainly financed by current workers, as parents of students or as creditors of education loans, and increasing in volume as the population of students increases. From a long term perspective, a contributory scheme for funding for higher education strengthen the reproduction of the production system since it ensures that future workers are educated to replace actual workers (and future retirees). It would also legitimate a stronger monitoring on education choices, in order to anticipate technological evolutions and ecological constraints.

Such a redistribution system is more likely to lead to social justice than a self-funding system, since it ensures a direct control on wealth transfers instead of a indirect control based on saving incentives or disincentives. The main difference between contributory and self-funded systems is therefore not on who pays, since it is always in the end the current workers that produce current wealth, but who control the distribution: with self-funding, wealth allocation is left to individual choices and conjuncture hazard through financial assets, while under contributory distribution, choices are explicitly political and can result from a democratic procedure (elections, votes, protestations, etc).

In this part, we propose a concrete and quantified proposition for French higher education funding of, first, direct cost and, second, indirect costs.

Currently, per student funds are very unfairly distributed, with a clear lack of funds for

175 This situation is reinforced if we look at the difference between the population and the funding of the most and less prestigious institutions.

Universities during the 3 first years of Licence (L in the LMD European system). For each student in a preparatory school for the "grandes écoles", the French state spends 5 000 more euros than for a student at the university. Since one million students are currently a Licence, the global cost of this measure would rise to 5 billion euros. Part of the additional cost could be compensated by a reduction of higher education dropout and repeating, each inefficient year saves corresponding to 9 000€.

In addition to this increase of part of the direct cost of higher education, we propose to introduce an universal allocation for students, covering the indirect cost of education: housing, clothing, food, entertainment etc. This allocation must be seen as matching with the state contributory pension system: it is conditioned to commit to participate afterwards to the funding of the future allocations. Let's underline that this is not a credit since the future worker won't reimburse a loan but will contribute to a pay-as-you-go allocation system. Students receive the allocation during their studies under some conditions such as engagement to be a full-time student, a convincing academic project and exam success. We propose to set the allocation to 6 000 € per year for a student housed by her parents (or owner of her accommodation) and 12 000 € for a non-housed student. Assuming that 30% of the 2 200 000 students are housed (data of 2009), we get a global cost of 23 billions euros.

The first expected return of this system (increase of higher education fundings and allocation) is a real democratisation of higher education. Indeed, the large inscrease of students populations during the 80's and 90's in developed countries have first been described as a democratisation, but this denomination is now discussed since inequalities have in fact raised during the period, at least in France (see Albouy and Tavan (2007)). With a strong incentive and time to study, young people from lower classes are more likely to candidate and succeed in higher education, specially if the additional means for universities are used to better supervise the students. The universality of the allocation make it simpler than actual grants, often designed to populations unaware of.

This actual democratisation of higher education will produce a highly qualified working people. Since the allocation is conditioned to the academic projet of the student, it is possible to encourage orientation to emerging sectors (to anticipate an energetic change for example).

Additionally, the universal allocation will encourage youth autonomy and increase consumption since it is expected to be fully spend. Massive non marketable benefits usually linked with education, such as better health, culture and civic participation are also to be expected.

4. Contribution to the education funding scheme

We differentiate the contributions to our two propositions: direct cost of higher education must be financed on state budget, by an extension of a progressive tax, whereas the universal allocation must be financed as the state pension, as an indirect wage (social contribution).

4.1 Additional means for universities

We have evaluated the additional direct cost needed to 5 billion euros, which represent an augmentation of the French income tax of 9% if all the taxpayers contribute. If we only tax graduate taxpayers, this rise to 12%. And if one wants to differentiate between Licence graduates and Master (or higher) graduates, augmentations of respectively 15% and 10.5% will do the job.

Table 1.: Assumptions on taxpayers population structure

Income deciles rank	Mean income, €/year	Graduated	Including Master holders
1	7698	5 %	10 %
2	11253	10 %	20 %
3	13391	20 %	25 %
4	15297	30 %	30 %
5	17132	35 %	35 %
6	19220	40 %	40 %
7	21565	50 %	45 %
8	24698	60 %	50 %
9	29768	70 %	55 %
10	50778	80 %	60 %

Globally, these augmentations seem important because the French income tax is now a small tax with regard to TVA (French equivalent of Spanish IVA) or CSG (a very large tax directly deducted on income). If we chose to rise the CSG instead of the income tax, a 6% augmentation is sufficient.

4.2 Universal allocation

The evaluation of the cost of our universal allocation is of 23 billions euros. Since we consider this allocation as an extension of the state unfunded pension system, it must be financed in the same way. In France, pensions are part of the social security system, financed by a cotisation on wages. It is constituted of four ``branches" such as health, pensions, families and accidents. Since the allocation will replace part of the family branch (which includes housing grants, for 4 billions euros), we propose to extend this branch, from 57 billions to 57-4+23=76 billions euros. This correspond to rising the employer contribution from 5.4% of wages to 7.2%. It could be interesting to adjust the contribution with regards to the qualification of the employee, since employers of qualified workers benefit strongly from the higher education supported by the allocation.

5. Conclusion

In the article, we have suggested that a "self-funded education scheme" is not relevant to favor a quantitative and qualitive democratisation of higher education. We argue that a "contributory education scheme" would be much more effective and we develop the theoretical basis for such a scheme, by analaogy with the French pension system. This model is characterised 1) by a universal access for students to grants allowing them to take charge of themselves during their higher education curriculum ; and 2) by a funding regime relying in particular on the population that has benefited from grants, once studies are finished. We derive theoretical motivations in favour of a contributory education scheme: the equity of access to higher education, the incentives for students and university to be efficient, as well as the contributory equity are discussed. Finally, we assess, for France, the cost and the options concerning the transformation of the tax system. We show the cost of such a system would be of 24 billions euros and that it could be financed with a distribution of the effort depending on the revenue and diploma.

References

Boudon, R. (1974): Education, opportunity, and social inequality : Changing prospects in Western society. Wiley-Interscience, New York.

Boudon, R. (1994): The art of self-persuasion : The social explanation of false beliefs. Polity Press, Cambridge.

Bourdieu, P. (1974): "Avenir de classe et causalité du probable". *Revue française de sociologie*, 15: 3–42.

Breen, R. and J. H. Goldthorpe (1997): "Explaining educational differentials : Towards a formal rational action theory". *Rationality and Society,* 9 (3):275–303.

Field, E. (2009): "Educational debt burden and career choice: Evidence from a financial aid experiment at nyu law school". *American Economic Journal*: Applied Economics, 1(1):1–21, 2009.

Flacher, D. and H. Harari-Kermadec (2011): "Tuition fees, self-esteem and social heterogeneity". *Education Economics* (to be published).

Gary-Bobo, R. and A. Trannoy (2005): "Faut-il augmenter les droits d'inscription à l'université?" *Revue Française d'Economie,* 19 (3):189–237.

Gary-Bobo, R. and A. Trannoy (2008): "Efficient Tuition Fees and Examinations". *Journal of the European Economic Association*, 6 (6):1211–1243.

Gonzalez M. and A. Menendez (2002): "Public University in Argentina: subsidizing the rich?" *Economics of Education Review*, 21(4):341–351, 2002.

Grégoir, S. (2008): Les prêts étudiants peuvent-ils être un outil de progrès social? Technical report, EDHEC, Lille, Nice, Octobre.

Holm, A. and M. Jaeger (2008): "Does relative risk aversion explain educational inequality ? A dynamic choice approach". *Research in Social Stratification and Mobility*, 26(3):199–219, 2008.

Sullivan, A.: "Students as rational decision-makers: The question of beliefs and attitudes". *London Review of Educatio*n, 4(3):271–290, 2006.